Epitomes

Important Advances in Clinical Medicine

Chest Diseases

The Scientific Board of the California Medical Association presents the following inventory of items of progress in chest diseases. Each item, in the judgment of a panel of knowledgeable physicians, has recently become reasonably firmly established, both as to scientific fact and important clinical significance. The items are presented in simple epitome and an authoritative reference, both to the item itself and to the subject as a whole, is generally given for those who may be unfamiliar with a particular item. The purpose is to assist busy practitioners, students, research workers, or scholars to stay abreast of these items of progress in chest diseases that have recently achieved a substantial degree of authoritative acceptance, whether in their own field of special interest or another.

The items of progress listed below were selected by the Advisory Panel to the Section on Chest Diseases of the California Medical Association, and the summaries were prepared under its direction.

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Inhaled Treatment of Asthma

THE TOPICAL DELIVERY OF METERED-DOSE INHALER (MDI) drugs is currently regarded as optimal for the treatment of asthma. The standard dosages of most agents are two to four puffs from an MDI three or four times a day, whereas inhalant solutions of bronchodilators are usually given in dosages that may be ten times as large. Recently there has been a trend towards using an appropriately increased number of puffs of an MDI (usually with a spacer added) for emergency department and inpatient therapy for acute asthma in place of jet-nebulizer aerosolization.

The increasing death rate of asthmatic patients has led to concerns about the role of sympathomimetic aerosols. In New Zealand, the potent aerosol bronchodilator, fenoterol, has been cited as potentially hazardous, but no other MDI preparation has been implicated. Recently airway reactions to the use of metaproterenol sulfate (Alupent) MDI were found to be the result of a change in the adjuvant, and this problem has been resolved by restoring the original formulation.

Corticosteroids are used by some authorities to provide cornerstone therapy for the inflammatory changes that characterize asthma. The appropriate doses and number of treatments a day for various MDI products are controversial, however. It is probable that increased dosage would be effective in some persons with asthma who respond inadequately to standard dosing with inhaled steroids, although the inconvenience and expense are major obstacles. It is claimed that flunisolide is effective if given twice a day, and it is probable that beclomethasone dipropionate and triamcinolone would be equally effective if given twice rather than three or four times a day.

In the outpatient management of asthma, most experts prescribe MDI delivery of a β_2-selective bronchodilator, using increased doses if necessary. A spacer can be advantageous, but some patients prefer the new inhaled powder form of albuterol. A steroid MDI with a spacer can be added, but considerable individual experimenting may be needed to establish the optimal dosing for each patient. Younger patients may benefit from using cromolyn sodium and older ones with a component of chronic obstructive pulmonary disease should try ipratropium bromide. Oral therapy in patients with chronic asthma has a secondary role, but an oral agent should be introduced—choosing from slow-release theophylline or albuterol, or prednisone—if the aerosol regimen becomes too complex or demanding. For a competent adult patient, there is no justification for prescribing a powered nebulizer or an exotic aerosol drug delivery system to be used at home.

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REFERENCES

Newhouse MT, Dolovich MB: Control of asthma by aerosols. N Engl J Med 1986; 315:870-874

Salmeron S, Guerin JC, Godard P, et al: High doses of inhaled corticosteroids in unstable chronic asthma—A multicenter, double-blind, placebo-controlled study. Am Rev Respir Dis 1989; 140:167-171

Summer W, Elston R, Tharpe L, et al: Aerosol bronchodilator delivery methods—Relative impact on pulmonary function and cost of respiratory care. Arch Intern Med 1989; 149:618-623

Ziment I: A prescription for prescription writers. Respir Care 1988; 33:841-843

Lasers in Pulmonary Treatment

IN THE PAST DECADE lasers have been developed for the treatment of tracheobronchial obstruction. Evidence gathered by many investigators indicates that the neodymium-YAG [yttrium-aluminum-garnet] laser is most helpful in providing rapid and safe palliative relief of obstructed large airways—trachea, main stem, and lobar bronchi—due to intraluminal benign or malignant lesions. Laser therapy may provide palliative relief in an asphyxiating patient for whom no therapeutic alternative previously existed.

The electromagnetic or photon energy of lasers is absorbed by tissues and dissipated as heat-causing destruction. In the case of the neodymium-YAG laser, energy is transmitted through a thin, flexible quartz fiber that easily passes through the biopsy channel of a flexible or rigid bronchoscope. The procedure is done in an operating department or its equivalent under full anesthetic control, preferably through a ventilating rigid bronchoscope, and generally requires less than two hours of operating time and two days' stay in a hospital.

Those intraluminal lesions that are most technically responsive are short, polypoid, and only partially obstruct a major airway. Alternatively, extensive or predominantly peribronchial (extraluminal) lesions as detected by bronchoscopy and chest computed tomography are not easily palliated.

Most symptomatic patients who require laser treatment have primary or metastatic lung cancer that has recurred or cannot be controlled despite previous or concurrent surgical therapy, radiation therapy, or chemotherapy. In selected cases, however, patients having severe dyspnea, wheezing,